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maxilla, which is broad at the base and widely rounded at the apex. The transverse median nervure of the anterior wings enters far before the origin of the basal nervure; marginal cell acuminate, but not sharply so, scarcely attaining the costa at the apex; first cubital cell the longer, second narrowed at least one half above, the second transverse cubitus strongly bent; stigma small, narrow. Second joint of hind tarsi normal, normally inserted on the first; claws cleft; pulvillus present. Abdomen distinctly fasciate; "pygidium triangular, entire, the hypopygium normal" (*Ashm.*). The above characters will I believe separate the genus from any hitherto known and place it, at the same time, in the Panurgidæ.

In *Zucesta rufipes* the mandibles are elongate, pointed sharply, and with a poorly defined tooth set nearly half way back on the inner side; clypeus is yellow on the apical half only, labrum yellow, mandibles yellow at base blending into ferruginous at apices: ocelli in a curve; antennæ longer than head, scape deep brown, flagellum yellowish; tegulæ yellowish, shining, hairy; legs reddish-yellow, spurs white, claws dark; pubescence rather sparse, especially on thorax; abdominal segments 1-5 fasciate apically, 6 and 7 with dense short appressed pubescence. All the pubescence is cinereous, that on thorax and vertex slightly yellowed, and on legs appearing silvery and glistening.

Class I, HEXAPODA.

Order II, COLEOPTERA.

BIOLOGIC NOTES ON SPECIES OF LANGURIA.

BY F. H. CHITTENDEN,

WASHINGTON, D. C.

Until the year 1879, when *Languria mozardi* was reported by Professor J. H. Comstock in the stems of red clover (Ann. Rept. Comm. Agr., 1879, p. 199), none of the species of *Languria* were known to subsist at the expense of useful plants; in short, nothing appears to have been published prior to that time of the larval food habits of our American representatives of the genus. Messrs. F. M. Webster and C. M. Weed have both contributed to our knowledge of the biology of this species, and the writer has furnished in Insect Life (Vol. II, pp. 346-

347) some observations on it and *L. gracilis* Newm. The following notes, which were made several years ago, in the neighborhood of Washington, D. C., add some new facts in the life economy of the genus.

Languria mozardi Latr.

To the already long list of larval food plants of this species, which is now well-known under the name of clover-stem borer, may be added the Joe-Pye weed (*Eupatorium purpureum*) and thorough-wort (*E. perfoliatum*), from which the writer has reared it. Larvæ and pupa taken in stems of wild lettuce (*Lactuca canadensis*) and subsequently reared were both bright orange in color. A larva transformed to pupa September 2 and to adult 9 days later.

A chalcidid parasite, which Mr. Ashmead has described as *Habrocytus languriæ*, and which was found still more commonly with *L. trifasciata* was reared from *mozardi*. A larva of the parasite found attached to a beetle larva a day or two later detached itself from its host and transformed to a naked pupa, the imago appearing September 17. The pupal period of the parasite in this case was between ten and twelve days.

Languria bicolor Fab.

Beginning with the middle of June, this species has been observed in numbers on pale Indian plantain (*Cacalia atriplicifolia*) at Glen Echo and Cabin John, Md. Every plant at this time bore near its summit a pair of the beetles, which species by the way had not hitherto been taken by anyone connected with the U. S. Dept. of Agriculture in the neighborhood of the District of Columbia. The leaves were much eaten, and every stem showed the egg nidus of the beetle. By the first week of September most of the inhabitants of the stems of plants growing in bottom land exposed to the sun had transformed to pupæ and beetles. On higher ground in woodland, on plants growing in more or less shady locations, larvæ were also taken, there being a noticeable difference in the rapidity of development of the species, due to the different environment. Only a few uninfested plants were noticed. Some contained only one or two individuals, but usually stems are hollowed from the base to the flowers, four or five individuals occupying a single stem. As in the case which will be mentioned of *Lactuca* infested with *L. trifasciata*, the presence of the insects in the stems had no appreciable effect on the vitality of the plants, although galls were frequently formed through the work of the larvæ.

In one plant, eight feet in height, a beetle was found in the stem an inch below the surface of the earth, and the burrows extended to the top of the stem, which was withered and somewhat blackened. The burrows measure from three to six inches in length, and the castings which fill the hollowed stems between them occupy a similar space, and often a considerable space intervenes that is unoccupied. It was quite noticeable that the stems where broadest usually contained adults or pupæ that were larger than those occupying narrower portions of the stems at the tops, and that the individuals near the base develop earlier, beetles being found there while larvæ were at the top.

A pupa was being devoured by a mite related to *Pediculoides ventricosus* Newm.

Languria trifasciata Say.

This beautiful species develops in the stems of wild lettuce (*Lactuca canadensis*). Oviposition has been observed at intervals from the middle of June to the first of July. About Washington the insect can be found at any time in August in its three stages within the stems. August 4, exit holes were observed in empty stems, indicating that adults begin to issue from them toward the latter days of July. The proportion of the different stages in the stems from August 4 to 19 was : one larva and one pupa to three adults. In most stems the interiors had turned brown and the larvæ that had occupied them had apparently worked throughout their full length, as there was more or less frass and other evidences of their presence from the roots up to the narrowest part of the stem which the larva was capable of penetrating. In some stems the larva forms a covering of castings two or three inches from the base ; in others the pupa case is formed as many as two feet from the roots, the location of the castings being reversed, *i. e.*, at the bottom. The beetle in exit cuts through at any point from the roots to near the tops of the stems.

Nearly every plant of *Lactuca* that could be examined had been infested by this insect ; yet it had not always visibly affected their development. Those that were entirely free from attack were still green while the lower leaves had begun to wither. Some infested plants were nine or ten feet in height and were still healthy in appearance. In only one case was there evidence that more than a single larva inhabited a stem, from which it may be surmised that in case two or more eggs are deposited in the same stem, which undoubtedly

sometimes happens, as we know to be the case with the preceding species, the older larva destroys the others. In the exception noted a number of parasites were observed in the lower part of the stem, and a small larva probably of this species in the upper end.

Many individuals of the chalcidid *Habrocytus languriae* Ashm. were noticed in the infested stems. Three colonies, each composed of an even half dozen pupæ of this species, were found, one colony in a *Languria*'s cell, which gave forth imagos August 23.

***Languria gracilis* Newm.**

About the District of Columbia this species is fairly abundant on different species of *Erigeron*, in about equal numbers on *E. canadense* and *philadelphicum*. On the latter plant oviposition was noticed, eight or nine minutes being consumed in depositing a single egg. The writer has previously recorded (Insect Life, Vol. II, p. 347) the occurrence of this species on *Urtica* and *Ambrosia*.

***Languria læta* Lec.**

To the above should be added the capture of larvæ and adults of *L. læta* by Mr. E. A. Schwarz in the stems of *Datura* at Hearne, Texas, August 6, 1894.

INSECTS BREEDING IN ADOBE WALLS.

BY GUSTAV BEYER,

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During a collecting trip to Cape San Lucas, Lower California, made in 1901, I had my headquarters at Santa Rosa, where I lived in a house of adobe walls and a roof of palm leaves. Glass windows being unknown in this section, two holes in said wall served as windows. It was during the month of July that I noticed numerous beetles on one of these improvised windows; all of which were covered with the flour-like dust of adobe. On further investigation, I found that these came out of the adobe wall, numerous small holes at about two to three and a half feet from the ground disclosing where these insects had come from. The insects were:

***Lyctus californicus* Casey.** Very abundant.

***Elasmocerus californicus* Fall.**